

FUEL INJECTION CONTROL DEVICE FOR A DIRECT FUEL INJECTION ENGINE

ABSTRACT OF THE DISCLOSURE

A fuel injection control device for a direct fuel injection engine is configured to
5 selectively control a fuel injection valve, which is configured and arranged to directly
inject a first fuel stream per cycle into a combustion chamber, to use a first fuel injection
timing when the controller determines that a stratified air–fuel mixture will be difficult to
form during a second fuel injection timing based on a determination of an engine
operation parameter by at least one sensor. The first fuel injection timing is set to control
10 the injection valve to inject the first fuel stream during an intake stroke while a piston in
the combustion chamber is approximately at an intake top dead center position such that a
majority of the first fuel stream injected from the fuel injection valve is received inside a
cavity formed on the piston.